

[0082] CLAIMS

What is claimed is:

1. A computer-readable medium having computer-executable instructions which, when executed on one or more processors of a digital transmitter device, direct the digital transmitter device to perform a method comprising:

 composing a digital image from an optically scanned image at the digital transmitter device;

 detecting predetermined indicia in the digital image;

 substituting an object for the detected predetermined indicia in the digital image;

and

 outputting a rendering of the digital image.
2. The computer-readable medium as defined in Claim 1, wherein the composing further comprises transforming optically scanned images of one of more sheets of paper into the digital image, wherein one of more sheets of paper were received from a sheet feeder at a scanning mechanism of the digital transmitter device.
3. The computer-readable medium as defined in Claim 1, wherein the detecting further comprises locating a portion of the digital image corresponding to predetermined indicia, wherein the portion exhibits a predetermined range of reflectance values.
4. The computer-readable medium as defined in Claim 3, wherein the predetermined range of reflectance values is detectable at the portion when the portion is illuminated by light having a predetermined range of wavelengths.

5. The computer-readable medium as defined in Claim 4, wherein the predetermined range of wavelengths represents a blue-violet light.

6. The computer-readable medium as defined in Claim 3, wherein the predetermined range of reflectance values is invisible to the human eye in natural sunlight.

7. The computer-readable medium as defined in Claim 1, wherein the detecting further comprises:

locating a portion of the digital image corresponding to predetermined indicia, wherein the portion includes a bar code.

8. The computer-readable medium as defined in Claim 7, wherein the bar code has a value corresponding to the object to be substituted.

9. The computer-readable medium as defined in Claim 1, wherein:
the detecting predetermined indicia in the digital image further comprises
detecting a symbol corresponding to the predetermined indicia in the digital image; and
the symbol represents the object to be substituted.

10. The computer-readable medium as defined in Claim 1, wherein the substituting further comprises:

determining a value for the detected predetermined indicia; and

looking up the determined value in a table of values having objects respectively corresponding thereto in order to determine the object to be substituted.

11. The computer-readable medium as defined in Claim 1, wherein the object to be substituted has a predetermined size and shape.

12. The computer-readable medium as defined in Claim 11, wherein the predetermined size and shape has a perimeter selected from the group consisting of a substantially rectangular perimeter and a substantially arcuate perimeter.

13. The computer-readable medium as defined in Claim 1, wherein:
the predetermined indicia are detected in the digital image at a portion thereof
having a perimeter;

the object to be substituted has a predetermined size and shape; and

the substituting further comprises:

changing the predetermined size and shape of the object to be
substituted into a size and shape not larger than the perimeter of the
portion of the detected predetermined indicia; and

substituting the changed predetermined size and shape of the
object for the detected predetermined indicia in the digital image.

14. The computer-readable medium as defined in Claim 1, wherein:
the predetermined indicia is detected in the digital image at an indicia portion
thereof; and

the substituting further comprises:

determining whether the indicia portion intersects any non-blank region of
the digital image; and

situating the object in the digital image such that the object does not
intersect a non-blank region of the digital image.

15. The computer-readable medium as defined in Claim 1, wherein the substituting further comprises:

receiving input corresponding to the detected predetermined indicia in the digital image; and

forming the input into the object to be substituted in the digital image.

16. The computer-readable medium as defined in Claim 15, wherein the forming the input further comprises looking up the received input to determine the object to be substituted in the digital image that corresponds to the received input.

17. The computer-readable medium as defined in Claim 16, wherein the receiving input further comprises receiving a handwriting image at a touch sensitive input device of the digital transmitter device.

18. The computer-readable medium as defined in Claim 1, wherein the substituting further comprises receiving a handwriting image at a touch sensitive input device of the digital transmitter device corresponding to the detected predetermined indicia in the digital image.

19. The computer-readable medium as defined in Claim 18, wherein the rendering of the digital image comprises the handwriting image superimposed over the optically scanned image.

20. The computer-readable medium as defined in Claim 19, wherein the handwriting image in the rendering of the digital image does not obscure any portion of the optically scanned image.

21. The computer-readable medium as defined in Claim 16, wherein the outputting a rendering of the digital image further comprises transmitting a network message including the digital image from the digital transmitter device to an electronic address including an address of a network resource and a destination location thereat.

22. The computer-readable medium as defined in Claim 1, wherein:
the substituting further comprises receiving input of an electronic address; and
the outputting a rendering of the digital image further comprises forming a transmission for transmitting a network message including the digital image from the digital transmitter device to the electronic address including an address of a network resource and a destination location thereat.

23. The computer-readable medium as defined in Claim 1, wherein the rendering of the digital image is selected from the group consisting of a print out, a facsimile transmission of the digital image, an e-mail message containing a representation of the digital file, and an e-mail message having a file attached thereto that contains a representation of the digital file.

24. The computer-readable medium as defined in Claim 23, wherein the attached file has a format selected from the group consisting of an ASCII formatted data format, a word processor format, a spread sheet data format, a PDF data format, a slide

show software data format, a GIFF data format, a TIFF data format, a JPEG data format, a bit-map data format, an OCR data format, and an encoded data format.

25. The computer-readable medium as defined in Claim 23, wherein the e-mail message has an associated electronic address selected from the group consisting of:

- an electronic mail (e-mail) address at an e-mail server on a network;
- a file folder address at a server on a network; and
- a Web site address at a server on a network.

26. The computer-readable medium as defined in Claim 1, wherein:
the substituting further comprises:

- receiving input corresponding to the detected predetermined indicia in the digital image, wherein the input is received at a touch sensitive input device of the digital transmitter device and comprises a handwriting image; and

- forming the handwriting image into the object to be substituted in the digital image;

- the outputting further comprises transmitting a network message including the digital image from the digital transmitter device to an electronic address including an address of a network resource and a destination location thereat.

27. The computer-readable medium as defined in Claim 1, wherein the digital transmitter device is selected from the group consisting of a facsimile machine, a copier, a multifunction peripheral (MFP), and a digital network copier.

28. A digital transmitter device comprising:
- means for making input;
 - means for composing a digital image from an optically scanned image;
 - means for detecting predetermined indicia in the digital image;
 - means for substituting an object for the detected predetermined indicia in the digital image; and
 - means for outputting a rendering of the digital image.
29. The digital transmitter device as defined in Claim 28, further comprising:
- means for storing a lookup database;
 - means for looking up manual input received at the means for making input against the lookup database;
 - means, when the means for looking up locates the manual input in the lookup database, for making the object to be the manual input; and
 - means, when the means for looking up does not locate the manual input in the lookup database, for making the object to be a diagnostic reflecting the absence of validation of the manual input.
30. The digital transmitter device as defined in Claim 29, wherein the means for making the object to be the manual input further comprises means for forming a transmission message to be transmitted over an interconnected network to an electronic mail address.
31. The digital transmitter device as defined in Claim 28, wherein the means for detecting further comprises means for locating a portion of the digital image

corresponding to predetermined indicia, wherein the portion exhibits a predetermined range of reflectance values that are detected by the means for detecting.

32. The digital transmitter device as defined in Claim 31, wherein the predetermined range of reflectance values is detectable at the portion when the portion is illuminated by light having a predetermined range of wavelengths.

33. The digital transmitter device as defined in Claim 28, wherein means for the detecting further comprises means for locating a portion of the digital image corresponding to predetermined indicia, wherein the portion includes a bar code.

34. The digital transmitter device as defined in Claim 33, further comprising:
means for determining a value corresponding to the bar code; and
means for looking up the value to identify the object to be substituted.

35. The digital transmitter device as defined in Claim 28, wherein the means for substituting further comprises means for receiving a handwriting image at a touch sensitive input device of the digital transmitter device corresponding to the detected predetermined indicia in the digital image.

36. The digital transmitter device as defined in Claim 35, wherein the rendering of the digital image comprises the handwriting image superimposed over the optically scanned image.

37. The digital transmitter device as defined in Claim 36, wherein the handwriting image in the rendering of the digital image does not obscure any portion of the optically scanned image.

38. The digital transmitter device as defined in Claim 37, wherein the handwriting image in the rendering of the digital image is sized so as to avoid obscuring any portion of the optically scanned image.

39. A digital transmitter device comprising:

- a user interface having a screen for displaying diagnostics and an input mechanism to receiving input;
- an optical scanner to optically scan one or more images;
- one or more processors executing an application to:
 - compose corresponding one or more digital images from the optically scanned one or more images;
 - detect one or more portions within the one or more digital images that contain predetermined indicia;
 - identify, for each detected said predetermined indicia, a corresponding object;
 - determine which of the identified said objects are to be completed by:
 - input; and
 - look up;
 - prompt and receive an input object at the user interface for each said object to be completed by input;

look up a value object for each said object to be completed by look up; and

substitute each said input object and value object for the respective portion within the one or more digital images that contains the predetermined indicia;

an output device to output a rendering of the one or more digital images.

40. A method comprising:

forming an optically scanned image at a digital transmitter device of media bearing predetermined indicia;

composing, at a digital transmitter device, a digital image from the optically scanned image;

detecting, with the digital transmitter device, a portion of the optically scanned image at which the predetermined indicia is situated;

identifying, with the digital transmitter device, an object corresponding to the predetermined indicia;

substituting, with the digital transmitter device, the object into the digital image at the portion; and

outputting, at the digital transmitter device, a rendering of the digital image selected from the group consisting of a print out, a facsimile transmission, and an e-mail message.

41. The method as defined in Claim 40, wherein:

the detecting predetermined indicia in the digital image further comprises detecting a symbol corresponding to the predetermined indicia in the digital image; and the symbol represents the object to be substituted.

42. The method as defined in Claim 40, wherein the substituting further comprises:

determining a value for the detected predetermined indicia; and

looking up the determined value in a table of values having objects respectively corresponding thereto in order to determine the object to be substituted.

43. The method as defined in Claim 40, wherein:

the predetermined indicia are detected in the digital image at a portion thereof having a perimeter;

the object to be substituted has a predetermined size and shape; and

the substituting further comprises:

changing the predetermined size and shape of the object to be substituted into a size and shape not larger than the perimeter of the portion of the detected predetermined indicia; and

substituting the changed predetermined size and shape of the object for the detected predetermined indicia in the digital image.

44. The method as defined in Claim 40, wherein the substituting further comprises receiving a handwriting image at a touch sensitive input device of the digital transmitter device corresponding to the detected predetermined indicia in the digital image.

45. The method as defined in Claim 44, wherein the rendering of the digital image comprises the handwriting image superimposed over the optically scanned image.

46. The method as defined in Claim 45, wherein the handwriting image in the rendering of the digital image does not obscure any portion of the optically scanned image.

47. A computer-readable media comprising instructions that, when executed a digital transmitter device, perform a method that includes:

forming an optically scanned image at a digital transmitter device of media bearing predetermined indicia;

composing, at the digital transmitter device, a digital image from the optically scanned image;

detecting, with the digital transmitter device, a portion of the optically scanned image at which the predetermined indicia is situated;

identifying, with the digital transmitter device, an object corresponding to the predetermined indicia;

substituting, with the digital transmitter device, the object into the digital image at the portion; and

outputting, at the digital transmitter device, a rendering of the digital image selected from the group consisting of a print out, a facsimile transmission, and an e-mail message.